

Description of the larval morphology of *Nemapogon bidentata* Xiao & Li (Lepidoptera, Tineidae)

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Abstract The larval morphology of *Nemapogon bidentata* Xiao & Li, 2010 is described. The chaetotaxy of the larva of this species is similar to that of *N. granella* (Linnaeus, 1758), but the location of seta A3 on the head capsule of this species differs from that of *N. granella*.

Key words Chaetotaxy, *Inonotus mikadoi*, Nemapogoninae.

Introduction

Xiao and Li (2010) described *Nemapogon bidentata* Xiao & Li, 2010 from China as a new species. Subsequently, Osada *et al.* (2015) recorded the species from Japan and noted that this species feeds on *Cryptoporus volvatus* (Peck) Shear., *Trichaptum abietinum* (Dicks.), *Coriolus brevis* (Berk.) Aoshi. and *Inonotus mikadoi* (Lloyd) Gilb. & Ryvarden (Polyporaceae: Basidiomycota). However, the immature stages of this species remained undescribed. This study describes the larval morphology of this species for the first time and compares the morphology of *N. bidentata* with that of *N. granella* (Linnaeus, 1758) described by Hinton (1956).

Material and methods

Larvae of *Nemapogon bidentata* from Hita, Oita Prefecture, Japan, were examined. To observe the morphology of the immature stages, the larvae were boiled for 4–5 min in 10% aqueous KOH and stained with acetocarmine for 10 min. The terminology and nomenclature of morphological characters of the immature stages follow Hinton (1956), Zagulajev (1964), Stehr (1987), Davis and Robinson (1998) and Komai *et al.* (2011).

To examine the immature characters of the species, larvae were collected from the fruit bodies of *Inonotus mikadoi* on decayed wood on Mt. Karadomari, Hita, Oita Prefecture, Japan, on 23 October 2013. The collected larvae were reared using fruit bodies of *I. mikadoi* as food in plastic cups containing wet cotton at $20 \pm 5^\circ\text{C}$ under a photoperiod of 13–16 h light 8–12 h dark in the laboratory.

Description

Nemapogon bidentata Xiao & Li, 2010 (Figs 1–3)

[Japanese name: Usuiro-kokuga]

Nemapogon bidentata Xiao & Li, 2010: 43–48; Osada *et al.*, 2015: 306–308.

Mature larva (Fig. 2). Length about 8 mm. Head capsule dark brown. Head brown, with six stemmata. Body light brownish white; all setae dark brown; prothoracic shield light brown; thoracic legs light brownish white with brown claw; peritreme of spiracles light brown; anal shield almost concolorous with body; crochets on ventral proleg in a uniordinal circle, 20–25; crochets on anal proleg in a semicircle, 10.

Head (Fig. 2). Head much broader than long, frontoclypeal area about equal to the distance to the vertical triangle; stemmata III and IV closed. Labrum as shown in Figure 2 C. Mandible as shown in Figure 2D.

Chaetotaxy (Figs 2, 3). Head: cranial setae as shown in Figure 2A, B; MDa between MD2 and MD3; Pa above A2; Pb nearer to P2 than P1; Aa between A2 and A1; A2 above A1; A3 nearer to II than A1; SSa between SS1 and SS3; AFa nearer to AF2 than AF1; La behind L1. Body: setae as shown in Figures 3A, B. Prothorax: thoracic shield bearing D1, D2, XD1, XD2, SD1, SD2, XDa, XDb, XDc, and MXD1; L1, L2, and L3 on a common pinaculum, L1 about three times the length of L3; SV1 and SV2 on a common pinaculum, SV1 about twice the length of SV2; MV3 extremely close together; V1 arranged in venter. Meso- and metathorax: D1 dorsal to D2, D2 about three times as long as D1; SD2 dorsal to SD1, SD1 about twice the length of SD2; L2 ventral to L1 and L3; SV1 as long as L1; V1 arranged in venter. First, second, seventh, and eighth abdominal segments: D2 about twice the length of D1; SD2 nearer to spiracle than SD1; L1 dorsal to L2; D1, SD1, L1, L2, L3, SV2, SV1, and V1 arranged in an almost vertical line. Third to sixth abdominal segments: similar to two anterior segments, except for the following points: SV1, SV2, and SV3 on a common pinaculum. Ninth abdominal segment: D1, SD1, L1, L3, SV1, and V1 arranged in an almost vertical line; D2 posterior to D1; SD1 slightly longer than the length of SV1; SV1 and SV2 on a common pinaculum. Tenth abdominal segment bearing four pairs of setae on the anal shield.

Mature larvae examined: [Kyushu] (Oita Pref.) 2exs, Mt Karadomari, Hita, 20. x. 2013, Y. Osada leg.

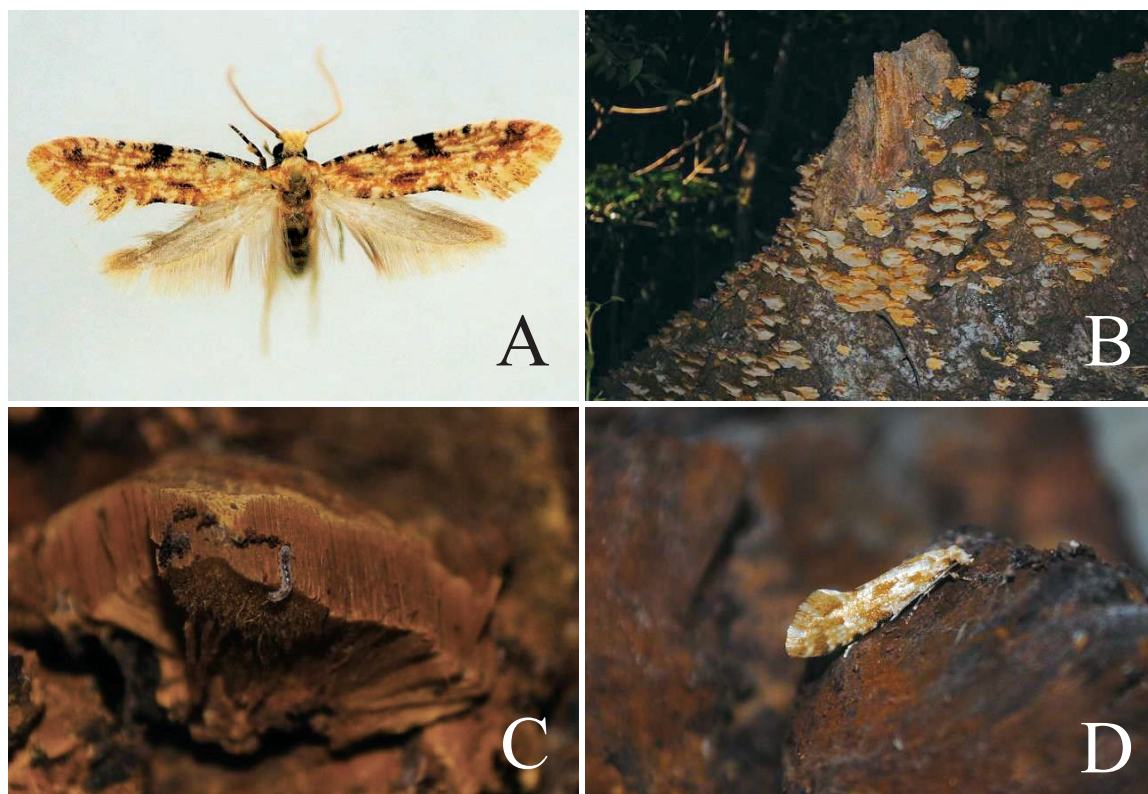


Fig. 1. *Nemapogon bidentata*. A: Adult, ♂. B: *Inonotus mikadoi* on decayed woods in Mt. Karadomari, Hita-shi, Oita Pref. C: Larva on fruit body. D: Adult on fruit body.

Host fungi. *Cryptoporus volvatus* (Peck) Shear., *Trichaptum abietinum* (Dicks.), *Coriolus brevis* (Berk.) Aoshi. and *Inonotus mikadoi* (Lloyd) Gilb. & Ryvarden (Osada *et al.*, 2015).

Biological notes (Fig. 1 A-D). Mature larvae were collected from *Inonotus mikadoi* on October 23, 2013, at Mt. Karadomari, Hita, Oita Prefecture. The larvae bore into the fruit body and fed on it. The larvae pupated in the fruit body. The anterior half of the pupa was extruded above the surface of the fruit body and the adult then emerged.

Remarks. The chaetotaxy of the larva of this species is similar to that of *Nemapogon granella*, but A3 of the head is placed nearer stemmata II than L1 not A3 and stemmata II is as distant as A3 and L1 as in *N. granella*.

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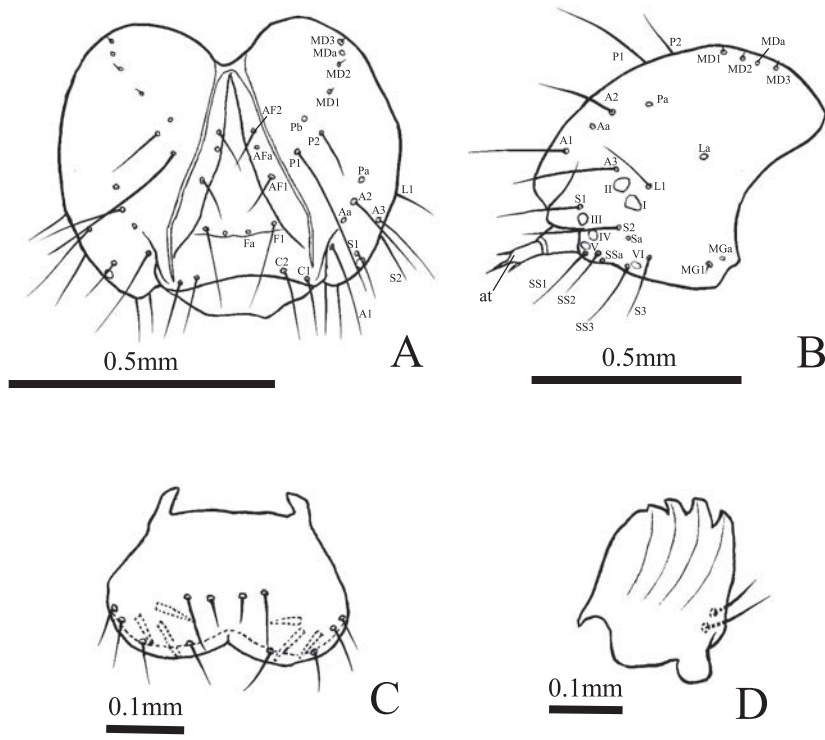


Fig. 2. Mature larva of *Nemapogon bidentata*. A: Head capsule, frontal view. B: *Ditto*, lateral view. C: Labrum, frontal view. D: Mandible, inner view. (at: antenna).

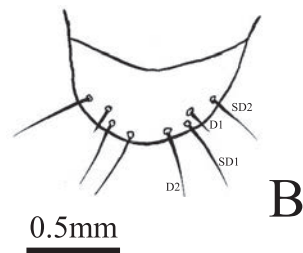
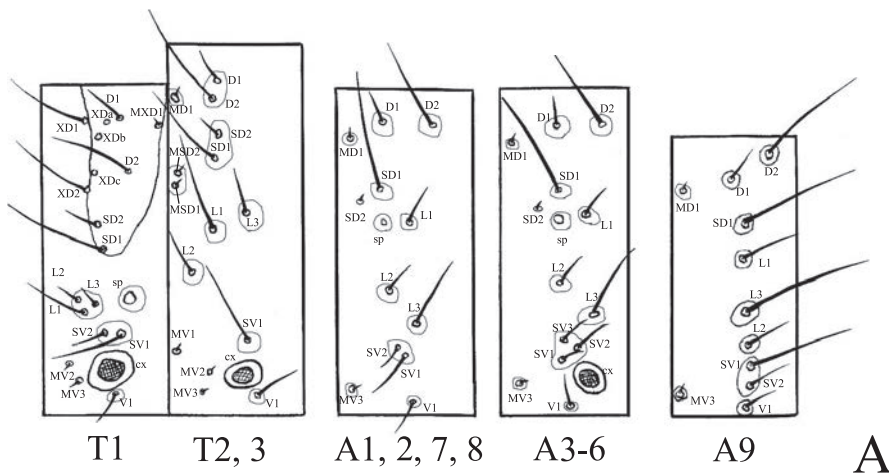


Fig. 3. Mature larva of *Nemapogon bidentata*. A: Body setal map. B: Anal sheath. (T1; T2-3; A1, 2, 7, 8; A3; A9).

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摘 要

ウスイロコクガ（鱗翅目，ヒロズコガ科）の幼虫の形態記載（長田庸平）

ウスイロコクガ *Nemapogon bidentata* Xiao & Li, 2010 は Xiao & Li (2010) によって中国で新種記載された。そして Osada *et al.* (2015) によって日本でも記録され、サルノコシカケ科のヒトクチャタケ・カワウソタケ・シハイタケ・ニ

クウスバタケが本種の寄主として記録された。しかし、幼生期の記載は行われていなかった。そこで、筆者は幼虫形態の記載を行った。

本種の幼虫はカワウソタケの子実体の内部を穿孔し、その中で蛹化する。そして、子実体の外側に蛹の前方部を突き出して羽化する。

本種の幼虫の刺毛配列は、同属のコクガ *N. granella* (Linnaeus, 1758) とほぼ同様であるが、頭部の A3 刺毛が個眼 II の近くに位置する点で異なる。

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